SOUTH AFRICAN PERISPORIACEAE.

By Ethel M. Doidge.

(With Plates VII and VIII.)

V. Notes on an Interesting Collection from Natal.

During July of this year an interesting collection of leaf fungi was made at three localities in Natal. The largest number of specimens was obtained at Buccleuch, near Cramond, on the 16th and 17th ; smaller collections were made at Zwartkop on the 19th and at Hilton Road on the 21st of that month. A large proportion of the fungi belong to the genus *Meliola*, and include a number of undescribed species, some of which have been collected on previous occasions in an immature condition, or so overgrown with parasites as to make a careful study impossible. A number of species previously recorded have also been collected on different hosts.

Meliola amphitricha, Fr.

On *Olea laurifolia* Buccleuch (11557).

On *Plectronia guienzii* Buccleuch (1576).

This species was collected on *Olea laurifolia* in the Woodbush and occurs on a variety of hosts belonging to the *Rubiaceae*, *Oleaceae*, and *Sapindaceae*. It has not been previously recorded on a *Plectronia*, the species most commonly found on this host being *Meliola falcata* Syd.

Meliola (Fig. 1).

On leaves of an unknown shrub, probably belonging to the *Myrtaceae*, Zwartkop (11594). This fungus is chiefly epiphyllous and forms small, sooty black, crustaceous growths which are easily separated from the leaf surface. The leaf tissues covered by the mycelium are brown and discoloured.

Meliola atra n. sp.

Amphigena, plerumque epiphylla, maculas atras, crustaceas, 3–4 μ diam. efficiens; hyphis fuscis, 7–10 μ crassis, cellulis brevis, 12–16 μ long., interdum ad septa constrictis; ramis plerumque oppositis; hyphopodiis capitatis alternis vel unilateralibus, breviter stipitatis, 20–27 × 16–20 μ, cellula superiore magna, inaequaliter lobulata; hyphopodiis mucronatis non numerosis, oppositis v. unilateralibus, pyriformibus v. sub-conicis, 10–13

× 6–7 μ. Peritheciis non numerosis, atris, carbonaceis, 200 μ diam. (non maturis); ascis non visis; sporidiis late ellipsoideis, 4-septatis, vix constrictis, utrinque rotundatis, 50–54 × 20–24 μ.

In foliis fruticis ignotis, Zwartkop, 19/7/18, leg. Doidge (M. H. No. 11594).

Meliola Cryptocaryae Doidge.

On *Cryptocarya Woodii* Zwartkop (11603.)

Meliola sp. (Fig. 2).

On the same leaves as *Meliola atra*. There is also on these leaves a fungus belonging to the *Trichopeltaceae* and one belonging to the *Hemisphaeriaceae*, both immature, and a species of *Asterina*. The general habit of the *Meliola* is very similar to that of *Meliola Helleri* Earle, which occurs in Porto Rico, but the setae are not forked as called for in the description of *M. Helleri* and the spores and hyphopodia differ somewhat in size.

Meliola cylindripoda n. sp.

Amphigena, plerumque hypophylla, pelliculas tenues subindefinitas, nigras, 3–6 μ diam., formans, saepe plus minusve confluens; mycelio intertexta, pallide fusco; hyphis 6–7 μ crassis, irregulariter undulatis, cellulis 20–27 μ long., ramis oppositis; hyphopodiis capitatis alternis v. unilateralibus, breviter stipitatis, 12–16 × 6–9 μ; cellula superiore cylindracea: hyphopodiis mucronatis paucis, oppositis v. sparsis, ampullaceis v. pyriformibus, 16 × 6–7 μ; setis mycelicis parcis, simplicibus, rectis v. flexuosis, 300–500 μ long, basi 6–7 μ crassis, opacis, ad apicem pallidiorem paulatim attenuatis; peritheciis sparsis, globosis, minute verrucosis, 200–240 μ diam.; ascis evanidis; sporidiis 40–44 × 15–17 μ, cylindraceis, atro-fuscis, utrinque rotundatis 4-septatis, leniter constrictis.

In foliis fruticis ignotis, Zwartkop, 19/7/18, leg. Doidge (M. H. 11596).

Meliola ditricha K. & Cke. (Doidge).

On *Olea laurifolia* Buccleuch (11615) and on *Gymnosporia* sp. Buccleuch (11572). This species was described from material collected by Medley Wood in 1876 ('Trans. Roy. Soc. S.A.,' vol. v, pt. 6, p. 728) on *Celastrus* sp. on which the perithecia were immature. Recent collections show abundant mature perithecia, they are 280–320 μ diam. and have conical chitinous appendages about 30–40 μ long; these are more opaque than is usual in these perithecial appendages. The form on *Olea* is more effuse and the hyphopodia somewhat larger (33–40 × 13–10 μ) than that on *Celastrus*. On *Olea* the fungus is usually heavily parasitised and does not often form perithecia. *Meliola ditricha* has also been collected on *Olea laurifolia* at Tabankulu, Transkei, 15/3/15, by G. Fraser (M. H. 8888), and on *Pleurostylia capensis*, van Stadens Pass, 13/11/17, leg. E. M. Doidge (10883).

Meliola sp. (Fig. 3).

On *Excoecaria caffra*, Buccleuch; forms very conspicuous olive green spots, but is usually very heavily parasitised, and seldom forms perithecia. It does not agree with the description of any other species in the group with 4-septate spores and simple mycelial setae.

Meliola Excoecariae n. sp.

Amphigena, maculas rotundatas v. irregulares, 5–10 μ diam. formans; hyphis fuscis, undulatis, 6–8 μ crassis; ramis plerumque alternis; hyphopodiis capitatis alternis, stipitatis, 23–35 × 10–16 μ, cellula basali 7–10 μ long., cellula superiore varie lobata, plerumque obtuse tri-lobulata v. triangulata; hyphopodiis mucronatis oppositis v. sparsis, ampullaceis v. piriformibus, 15–20 × 6–7 μ; setis mycelicis parcis, 300–500 μ opacis, basi 6–7 μ crassis, haud attenuatis sed apice abrupte acuminatis; peritheciis atris, globosis, carbonaceis, 145–170 μ diam. (maturis?) asci evanidis, sporidiis 4-septatis cylindraceis, utrinque rotundatis, vix constrictis, 35–40 × 13–17 μ.

In foliis *Excoecariae caffrae* Buccleuch, 17/7/18, leg. Doidge (11566), Buccleuch, 23/3/16, leg. Doidge (9705).

Meliola furcillata Doidge.

This species was described ('Trans. Roy. Soc. S.A.,' vol. v, pt. 6) as occurring on the leaves of *Maesa rufescens*; later collections have been made, all on leaves of *Schmidelia monophylla*, and a careful re-examination of the original material shows that this was incorrectly determined, and that all collections of this fungus are on the same host. *Meliola furcillata* has been collected on *Schmidelia monophylla* at Amanzimtoti (Type M. H. 1573), Winterskloof, Claridge, 31/5/15 (8993) and at Buccleuch (11577).

Meliola ganglifera Kalch.

On leaves of *Curtisea faginea*, Zwartkop (11601). This fungus forms very conspicuous black spots on the leaves of *Curtisea faginea* and occurs very commonly on this plant in Natal, the Transvaal and the Cape Province.

Meliola sp. (Fig. 4).

On *Celastrus cordatus*? is a very showy species with 3-septate spores; the colonies show fairly distinct concentric zones. This species is remarkable for the very numerous larviform appendages on the perithecia; apparently almost all the superficial cells develop into appendages. The group with 3-septate spores, which is a comparatively small one, is very well represented in South Africa.

Meliola gloriosa n. sp.

Hypophylla, ferruginea, maculas orbiculares 5–10 μ diam. formans;

mycelio radiato; hyphis tenuibus, 4–5 μ crassis, tortuosis, dense intertextis, cellulis 30–50 μ longis; ramis alternis, hyphopodiis capitatis alternis, tenuibus, stipitatis, 30–80 × 13–20 μ, stipite interdum elongato et 1-septato, 14–64 μ long., diverse flexuoso v. curvato, cellula superiore 16 μ fere longa; irregulare, plerumque sub-lobata, nonnunquam inverse triangulata; hyphopodiis mucronatis parcis, pallidioribus, tenuibus, 18–20 × 5–6 μ ampullaceis v. gibbosis; setis nullis; peritheciis numerosis, globosis, atris, carbonaceis, 300–400 μ diam., appendiculis numerosis, larviformibus, subcylindraceis v. acclivis, 65–80 × 25–30 μ apice interdum recurvatis; asci evanidis; sporidiis 3-septatis, ellipsoideis, vix constrictis, 45–50 × 15–16·5 μ.

In foliis *Celastrus cordatus?* Buccleuch, Natal, 17/7/18, leg. Doidge (11565).

Meliola Hendeloti Gaill.

On *Clerodendron* sp. Buccleuch (11571).

Meliola inermis Kalch & Cke.

On *Buddleia pulchella* Buccleuch (11568).
On *Chilianthus dysophyllus* Buccleuch (11583).
This species has only been recorded in South Africa on *Buddleia* spp.

Meliola malacotricha Speg.

On *Indigofera cylindrica* Buccleuch (11560).

Meliola microspora Pat. & Gaill. var. *Africana* on *Plectranthus* sp. Buccleuch (11576).

Meliola natalensis Doidge.

This species was described ('Trans. Roy. Soc. S.A.,' vol. v, pt. 6, p. 724) on leaves of shrub unknown, Umgeni, near Durban (8980); on comparison with named specimens this host appears to be *Dovyalis tristis*, and the same species has been collected by Dr. Pole Evans on *Dovyalis rhamnoides* (Umgeni Beach, Durban, 4/6/12 [2312]).

The original specimen of *Meliola conferta* Doidge (*ibid.*, p. 724) is also on *Dovyalis rhamnoides*, and consists of some rather old material collected by Dr. Medley Wood; more recent collections on this host show that the spores in the type collection have collapsed somewhat and appear wider than normal, so that the normal measurement of the spores is 40–45 × 14–16·5 μ, rarely larger. This being the case *M. conferta* only differs from *M. natalensis* in the more crowded habit and the slightly smaller hyphopodia.

In a recent collection at Buccleuch on *Dovyalis tristis* there is a form which agrees with *M. natalensis* in the form of its hyphopodia and spores, but with quite a different habit (Fig. 5) from either *M. natalensis* or *M. conferta*; the mycelium is very diffuse, not forming definite spots, and the hyphopodia are very remote. I can only conclude that these are all forms of a very variable fungus, and should be regarded as varieties of *M. natalensis.* The collections in the Mycological herbarium would then be classified as follows:

Meliola natalensis Doidge.

On *Dovyalis tristis* (type), Umgeni Beach, 27/5/15, Doidge (8880).

On *Dovyalis rhamnoides*, Umgeni Beach, 7/6/12, Pole Evans (2412).

Var. *conferta*; differs from the type in the crowded and usually opposite hyphopodia, which are slightly smaller than those of the type.

On *Dovyalis rhamnoides*, Durban, Medley Wood (345), (Wood, 6457), (Wood, 6454).

Var. *laxa*. Spores slightly smaller than type (seldom exceeding 40 × 14 μ), hyphopodia remote; on leaves of *Dovyalis tristis*, Hilton Road, 21/7/18, E. M. Doidge (11608).

Meliola sp. (Fig. 6).

On leaves of *Ochna atropurpurea* var. *natalitia;* this is one of the large group with 4-septate spores and simple setae; it does not agree exactly with any species previously described.

Meliola Ochnae Doidge n. sp.

Amphigena, maculas irregulares 4–8 μ diam. efficiens; hyphis fuscis, undulatis, 5–6 μ crassis; ramis oppositis, anastomosantibus; cellulis plerumque 20–25 μ long.; hyphopodiis capitatis alternis, raro oppositis, breviter stipitatis, 12–16 × 6–7 μ, cellula superiore oblonga v. ovata, saepe curva; hyphopodiis mucronatis oppositis vel sparsis, ampullaceis, 15–20 × 6 μ; setis mycelicis non numerosis, circa perithecia praecipue evolutis, simplicibus, rectis v. flexuosis, saepe subcrenulatis, acutis, 240–350 μ long., basi 6–7 μ crassis, ad apicem paulatim attenuatis; peritheciis parcis, sparsis, atris globosis, carbonaceis, verrucosis, 145–175 μ diam.; ascis evanidis; sporidiis 4-septatis, brunneis, ellipsoideis, utrinque rotundatis, leniter constrictis, 35–37 × 12–14 μ.

In foliis *Ochnae atropurpureae* var. *natalitiae* Buccleuch, Natal, 17/7/18, leg. Doidge (11567), Winter's Kloof, 1/6/15, leg. Doidge (8989).

Meliola peltata Doidge.

On *Podocarpus falcata* Buccleuch (11551); has previously been collected only on *Podocarpus latifolia* in the Cape Forests (Knysna and George).

Meliola sp. (Fig. 7).

On *Olea laurifolia*; on the same leaves as *Meliola amphitricha* and *M. ditricha* there is a third species of *Meliola* which clothes the petioles and also forms elongated colonies under the margin of the leaf; on the petioles it forms a dense black mat which readily separates from the substratum;

on the petioles also, both mycelial setae and perithecia are formed in great abundance, and they are much less numerous in the spreading colonies along the leaf margin. It belongs to the comparatively small group with definitely uncinate mycelial setae.

Meliola petiolaris Doidge n. sp.

Hypophylla et petiolicola, velutina, atra, peritheciis intra setas myceliales numerosissimas absconditis, globosis, atris, minute verrucosis, 220–250 μ diam.; mycelio ex hyphis fuscis anastomosantibus 5–6 μ crassis composito; cellulis 25–30 μ long.; ramis oppositis; hyphopodiis capitatis alternantibus, tenuibus, 15–40 μ long. × 10–13 μ crassis, cellula basali saepe 1-septata, cellula superiore obovata, truncata v. sub-lobata, hyphopodiis mucronatis non visis; setis mycelicis simplicibus, curvatis plerumque uncinatis, 150–250 μ long., basi 8–9 μ crassis, ad apicem obtusum leniter attenuatis; ascis 2–3 sporis, evanescentibus; sporidiis cylindraceis utrinque rotundatis as septa leniter constrictis, 40–44 × 13–16 μ, loculo medio saepe longiore.

In foliis et petiolis *Oleae laurifoliae* Buccleuch, Natal, 17/7/18, leg. E. M. Doidge (11558).

Meliola Podocarpi Doidge.

Associated with *M. peltata* on the leaves of *Podocarpus falcata* Buccleuch (11552), also on *P. elongata* (11561).

Meliola sp. (Fig. 8).

A rather inconspicuous species on *Popowia caffra* which has been collected several times in an immature condition. It has previously been found at Kentani (A. Pegler, 1996) (8882) and Winter's Kloof (8990).

Meliola Popowiae Doidge n. sp.

Epiphylla, effusa, pelliculas tenues nigras formans, hyphis brunneis, inaequalibus, undulatis, 6–7 μ crassis; cellulis, aliis 30 μ aliis 10 μ longis; ramis oppositis v. irregularibus; hyphopodiis capitatis stipitatis plerumque ad pares angulos hyphibus, 12–15 × 8–10 μ, cellula superiore globosa; hyphopodiis mucronatis sparsis v. oppositis ampullaceis, rectis v. curvis, 16 × 6 μ; setis mycelicis parcis, circa perithecia praecipue evolutis, simplicibus, flexuosis, 300–500 μ long., basi 10 μ crassis, nonnihil ad apicem (6–7 μ cr.) attenuatis. Peritheciis paucis, globosis, atris, carbonaceis, verrucosis 180–200 μ diam., ascis evanidis; sporidiis 4-septatis, cylindraceis, ad septa constrictis, utrinque rotundatis, 35–40 × 13–16 μ.

In foliis *Popowiae caffrae* Buccleuch, Natal, 17/7/18, leg. Doidge (11587); Hilton Road, 21/7/18, leg. Doidge (11607).

Meliola Rhois P. Henn.

On *Rhus laevigata*, Buccleuch (11582); on *Rhus* sp., Buccleuch (11595).

Meliola rigida Doidge.

On *Xymalos monospora*, Buccleuch (11578).

Meliola Toddaliae Doidge.

On *Toddalia lanceolata*, Buccleuch (11564).

Meliola varia Doidge.

On *Rhoicissus rhomboidea* Buccleuch, 20/7/18, J. Leighton (11554). This is a comparatively rare species, and was not plentiful on the host even after the exceptionally heavy rains which fell last season.

EXPLANATION OF PLATES VII AND VIII.

[All drawings were made with the camera lucida, Zeiss objective D. and a No. 5 ocular.]

PLATE VII.

FIG.

1. *Meliola atra.* (A) Mycelium with capitate hyphopodia; (B) spores.
2. *Meliola cylindripoda.* (A) Mycelium with capitate hyphopodia; (B) hypha with mucronate hyphopodia; (C) spores; (D) tips of setae.
3. *Meliola Excoecariae.* (A) Mycelium with capitate hyphopodia; (B) hypha bearing mucronate hyphopodia; (C) tips of setae; (D) spores.
4. *Meliola gloriosa.* (A) Mycelium with capitate hyphopodia; (B) mucronate hyphopodia; (C) spores; (D) perithecial appendages.

PLATE VIII.

5. *Meliola natalensis* var. *laxa.* (A) Mycelium with capitate and mucronate hyphopodia; (B) perithecial appendages; (C) spores.
6. *Meliola Ochnae.* (A) Mycelium with capitate hyphopodia; (B) hypha with both kinds of hyphopodia; (C) tips of setae; (D) spores.
7. *Meliola petiolaris.* (A) Mycelium with capitate hyphopodia; (B) tips of setae; (C) spores.
8. *Meliola Popowiae.* Hyphae with (A) capitate hyphopodia and (B) mucronate hyphopodia; (C) tips of setae; (D) spores.